





GENESIS | CCTV

Vision with Integrity

# Box Camera : Day/Night w/*PIXIM's* WDR



[www.geniscctv.com](http://www.geniscctv.com)

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Thank you for purchasing Wide Dynamic Camera. Before using the camera, please read this operation manual carefully to obtain the best result and keep this manual for future reference.

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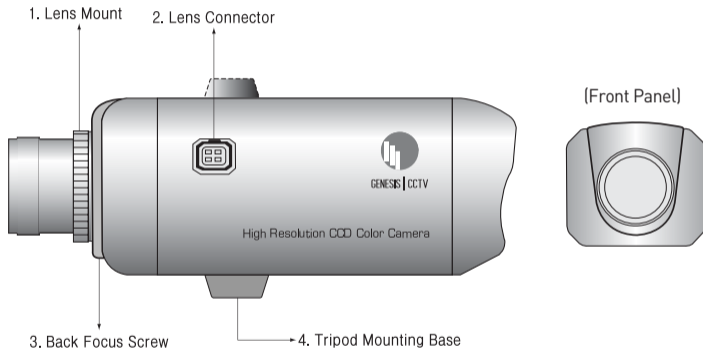
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## FEATURES

- Superior Images even in tough back light conditions
- 1/3" Digital Pixel System & Innovative 32 Bit DSP
- Wide Dynamic Range : 95dB(14Bit), 120dB Max.
- More than 540TVL of Horizontal Resolution
- High speed, automatic 5 level exposure control for each pixel
- Multiple camera options, including premium class of WDR using Digital Pixel System
- Wide Range of visible scene in real time
- Good Smearless even in the presense of strong light.
- Catch the image of fast moving object.
- Motion Detection and Digital Pan/Tilt/Zoom
- On Screen Menu and Camera ID
- C/CS Mount Lens Available
- 12VDC/24VAC Dual Power(Non-polarity)

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## NAME & FUNCTION



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## **1. Lens mount**

Mount for lens installation. See page 9.

## **2. Lens connector**

When using an auto iris lens, connect the lens cable to this connector. See page 8.

## **3. Back-Focus screw**

Screw it after adjusting the back-focus to fix the setting. See page 11.

## **4. Tripod mounting base**

Mounting base for camera installation. See page 12.

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## REAR VIEW & FUNCTION

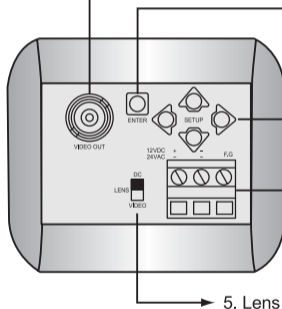
1. Video Output Connector

2. Enter

3. OSD Control

4. Power Input Terminal

5. Lens Select Switch



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### **1. Video output connector**

BNC connector that outputs a composite video signal.

### **2. Enter**

### **3. OSD control**

Push arrow keys to move the cursor to left, right, up and down.

### **4. Power input terminal**

Connect to 12VDC or 24VAC power source. When operating with 12VDC or 24VAC power supply, use only an isolated power source. (Be sure not to connect the power source until all other connections are completed)

### **5. Lens select switch**

When using an auto IRIS lens, set the switch according to the lens type.

VIDEO : Set to this position when using a Video type lens.

DC : Set to this position when using a DC (galvanometric) type lens.



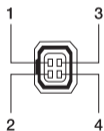
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## Lens Connector

When using an auto IRIS lens, connect the lens cable to the lens connector.

- **Video IRIS type lens :** Set lens switch to VIDEO, and put the lens cable into the lens connector.  
If the plug on the cable is a different type, replace it with the provided 4-pin iris plug.
- **DC IRIS type lens :** Set lens switch to DC, and put the lens cable into the lens connector.  
If the plug on the cable is a different type, replace it with the provided 4-pin iris plug.

### • Pin Assignment



### • VIDEO Iris type Lens

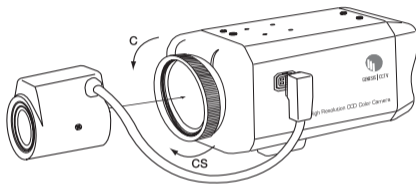
Pin No.	Signal
1	+9V DC (50mA max)
2	NC
3	Video
4	GND

### • DC Iris type Lens

Pin No.	Signal
1	Damping coil(-)
2	Damping coil(+)
3	Drive coil(+)
4	Drive coil(-)

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## LENS INSTALLATION

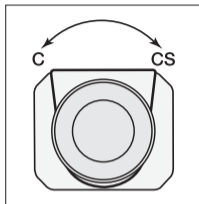


- Please connect a lens cable when using the DC type lens or VIDEO type lens.
- When using the VIDEO type lens, please adjust a brightness of image by volume attached with the lens.

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## 1. Mounting a lens

- ① Remove the lens mount cap from the camera
- ② Attach the lens to the mount. Secure it so that it does not become loose
  - C Mount lens : Turn the adaptor ring to counterclockwise.
  - CS Mount lens : Turn the adaptor ring to clockwise.
- ③ If the lens has an auto-IRIS mechanism, connect the lens connector.
  - When installing a Video-IRIS lens, lens switch should be set to VIDEO position.
  - When installing a DC IRIS lens, lens switch should be set to DC position.



## 2. Adjusting Auto-IRIS Lenses

Make this adjustment after connecting the camera to a power source and a monitor.

- ① Set AGC mode to off.
- ② When using a Video type lens : Adjust the level on the lens to produce minimum smear and optimum pictures.
- ③ When using a DC type lens : Adjust the video level on the rear panel to produce minimum smear and optimum pictures.
- ④ Set AGC mode to on. It is recommended that AGC be used in the "on" mode after adjusting the video level.

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### 3. Back-Focus Adjustment

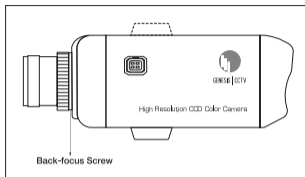
- When a lens is mounted, back-focus adjustment can be required. Adjust with the lens focus ring when the correct focus cannot be obtained.

### 4. With a Fixed-Focus Lens

- Fully open the aperture and set the focus ring to " $\infty$ " (infinity). In the case of an auto IRIS lens only, shoot a comparatively dark object so that the aperture is fully open.
- Loosen the back-focus screw with a L-wrench, and turn the lens mount to focus.
- After adjusting the back-focus, tighten the back-focus screw.

### 5. With a Vari-focal Lens

- Fully open the aperture and set the lens to the maximum tele-photo position. Then turn the focus ring to focus. In case of an auto IRIS lens only, shoot a comparatively dark object so that aperture is fully open.
- Set the lens to its maximum wide-angle position.
- Loosen the back-focus screw with a L-wrench, and turn the lens mount to focus. After adjusting the back-focus, tighten the back-focus screw.
- Repeat above step until the difference between focusing position "Tele" and "Wide" becomes the smallest.



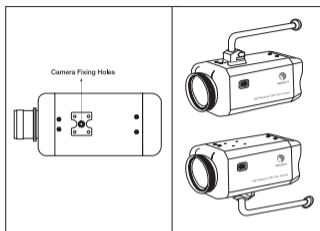
# CAMERA INSTALLATION

## 1. Installation

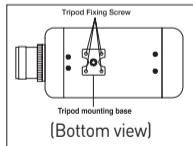
Camera can be installed on a tripod or a fixing part from the upper or the bottom plate by using the camera fixing holes (1/4, 20UNC) on the tripod mounting base. The tripod mounting base is attached on the bottom plate when shipped from factory.

Move the tripod mounting base when installing the camera from the upper plate.

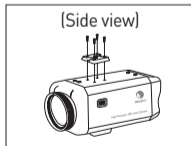
There are four tripod fixing screws on the tripod mounting base, Use four holes to increase the fixing intensity when installing the camera specially.



## 2. Tripod mounting base



- ① Remove the tripod fixing screws to remove the tripod mounting base from the camera bottom plate.

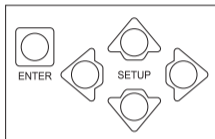


- ② Attach the tripod mounting base on the upper plate of the camera with the tripod fixing screws.

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## OSD Manual

### \*How to Operate Camera OSD:



Use the five buttons on the rear of this product to configure the features.

- Click the ENTER button. The features will start to be configured. The main menu is displayed on the monitor.
- Click the Up/Down button to move your selection vertically and to point to the selection.
- Use the Left/Right button to change the current state. By using the Left/Right button, optional values or states will be displayed in sequence. Click the button until the state you want is displayed.
- Select EXIT on each page and press ENTER button on rear panel for several seconds to end the setting. These settings cannot be saved.
- To move to a submenu, click the ENTER button in the mode that has a period (.).

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## MAIN MENU

SYSTEM INFORMATION

CAMERA SETUP

WDR SETUP

DISPLAY SETUP

EXIT

### 1. SYSTEM INFORMATION

#### SYSTEM INFORMATION

CAMERA TYPE : NTSC(PAL)

H/W VERSION : REV 1.0

S/W VERSION : REV 1.0

FACTORY DEFAULTS RESET

EXIT

- CAMERA TYPE: Displays the current TV system.
- H/W VERSION: Displays the hardware version.
- S/W VERSION: Displays the software version.
- FACTORY DEFAULTS RESET: Changes the values to the factory settings and saves the settings.
- EXIT: Moves to the previous page.

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## 2. CAMERA SETUP

CAMERA SETUP MENU	
VIDEO SETUP	
LENS SELECTION	
VIDEO ADJUSTMENT	
D&N SETUP	< COLOR >
	< BW+Burst >
	< BW >
	< AUTO . >
SAVE & EXIT	
EXIT	

- VIDEO SETUP: Selects TV SYSTEM (NTSC/PAL), SYNC (INTERNAL/L.L) and SYNC AUTOSENSE(ON/OFF).
- LENS SELECTION: Selects a lens type (DC/VIDEO/MANUAL).
- VIDEO ADJUSTMENT: Sets WHITE BALANCE, AGC, BLC, FLICKERLESS, GAMMA, RESOLUTION, SHARPNESS, and SATURATION.
- D&N SETUP: Selects COLOR or BW
- SAVE&EXIT: Saves the changed values of the current page and moves to the previous page.
- EXIT: Moves to the previous page.

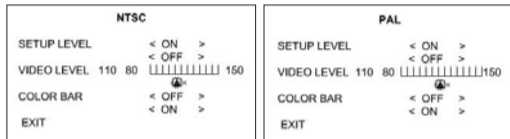
### 2.1 VIDEO SETUP

VIDEO SETUP	
TV SYSTEM	< NTSC . >
	< PAL . >
SYNC	< INT >
	< LL . >
SYNC AUTOSENSE	< OFF >
	< ON >
EXIT	

 CAMERA SETUP » VIDEO SETUP



## 2.1.1 TV SYSTEM

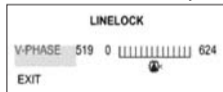


*CAMERA SETUP* » *VIDEO SETUP* » *TV SYSTEM* » *NTSC, PAL*

- SETUP LEVEL: Selects between 0 IRE and 7.5 IRE (Minimum black level of camera)
- VIDEO LEVEL: Sets the level of the video display signal.
- COLOR BAR: Displays the color bar on the monitor.

## 2.1.2 SYNC

- INT: Internal. Internal synchronization method
- L.L: LineLock. Power synchronization method (When an input voltage of 24VAC is used)



Select a V-PHASE value (0-624).

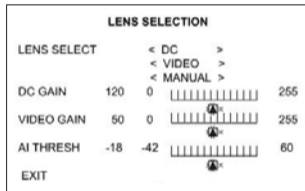
*CAMERA SETUP* » *VIDEO SETUP* » *SYNC* » *LL*

### 2.1.3 SYNC AUTOSENSE CAMERA SETUP » VIDEO SETUP » SYNC AUTOSENSE

- OFF: Selects between INT and L.L.
- ON: Synchronization is automatically set depending on the input power.  
With a 12VDC power supply, INT will be set. With an 24VAC power supply, L.L will be set.

### 2.2 LENS SELECTION CAMERA SETUP » LENS SELECTION

- LENS SELECT: Selects one item from DC, VIDEO, and MANUAL LENS.
  - When selecting the DC lens or VIDEO lens, the LENS selection switch on the rear side of this product should also be selected accordingly.
- DC GAIN: Controls the AUTO IRIS response rate of the DC lens as brightness changes.
- VIDEO GAIN: Controls the AUTO IRIS response rate of the VIDEO lens as brightness changes.
  - The lower the gain value, the slower the response rate. The higher the gain value, the faster the response rate.
  - If the value is set too high, hunting may occur.



- **AI THRESH:** Controls the gain value of the system where AUTO IRIS starts operating.
  - As the gain value gets lower, IRIS operates in an environment where the light is stronger. As the gain value gets higher, the IRIS operates in an environment where the light is weaker.
  - Disable this menu if MANUAL LENS is selected.

### 2.3 VIDEO ADJUSTMENT CAMERA SETUP » VIDEO ADJUSTMENT



- **WHITE BALANCE**
- **AGC: AUTOMATIC GAIN CONTROL.** Sets the brightness of the screen at a low light level.
- **BLC: BACKLIGHT COMPENSATION.** If the light near the subject is too strong, the subject will be too dark. In this situation, use this option to get a better video.
- **FLICKERLESS:** If the power frequency of the NTSC system is 50 Hz, use this option to disable any potential flickering of the screen.
- **GAMMA:** Corrects the gamma of the screen.
- **RESOLUTION:** Sets the resolution of the screen.
- **SHARPNESS:** Sets the SHARPNESS/APERTURE value of the screen.
- **SATURATION:** Sets the SATURATION (CHROMA) value of the screen.

VIDEO ADJUSTMENT	
WHITE BALANCE	
AGC	< NORMAL >
	< HIGH >
	< CUSTOM. >
	< LOW >
BLC	< OFF >
	< ON . >
FLICKERLESS	
	< OFF >
	< ON >
GAMMA	< AUTO >
	< MANUAL >
RESOLUTION	< NORMAL >
	< HIGH >
SHARPNESS	
SATURATION	
EXIT	

## 2.3.1 WHITE BALANCE CAMERA SETUP » VIDEO ADJUSTMENT » WHITE BALANCE

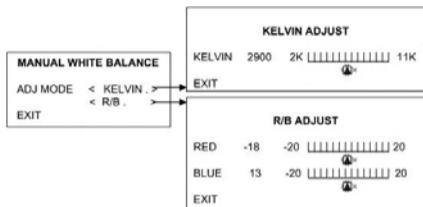
WHITE BALANCE MENU		
MODE	< ATW .	>
	< PUSH AWB .	>
	< MANUAL .	>
EXIT		

- **ATW: AUTO TRACKING WHITE BALANCE.** Automatically sets the value of white balance (Range: color temperature of 2,800 to 11,000 K).
  - **ATW SPEED:** The higher the value, the slower the tracking rate.
  - **WB BIAS:** Sets the color temperature, which is the reference point of ATW operation.
- **PUSH AWB:** This feature allows you to obtain the screen appropriate for your current lighting environment. Put the mouse point on 'Save AWB&All changes' from the PUSH AWB CONFIRM page and click the ENTER button to set the optimal state automatically.

ATW WHITE BALANCE		
ATW SPEED	10 1	 100
WB BIAS	500 -2K	 2K
EXIT		

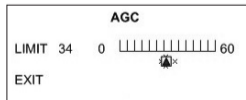
PUSH AWB CONFIRM
Save AWB & All changes
CANCEL
*** WARNING ***
All User properties will be written to rom

- **MANUAL:** There are two types of ADJ(Adjustment) modes that allow you to perform settings in detail manually:
  - **KELVIN:** Changes the color temperature to get the screen setting you want.
  - **R/B:** Increases or decreases the values of RED and BLUE to get the screen setting you want.



### 2.3.2 AGC(Automatic Gain Control)

- **NORMAL:** Increases or decreases the gain value from 0 to 26 dB automatically.
  - **HIGH:** Increases or decreases the gain value from 0 to 34 dB automatically.
  - **CUSTOM:** Sets the gain value from 0 to 60 dB manually.
  - **LOW:** Increases or decreases the gain value from 0 to 18 dB automatically.
- \* The higher the gain value, the brighter the screen but the higher the noise.

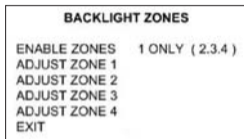


*CAMERA SETUP » VIDEO ADJUSTMENT » AGC » CUSTOM*

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### 2.3.3 BLC(Back Light Compensation)

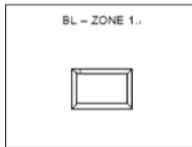
By setting the BLC to ON, you will be able to set up to four zones.



 CAMERA SETUP » VIDEO ADJUSTMENT » BLC » ON

#### \*How to Set BLC

Move to the relevant ADJUST ZONE depending on the number of ENABLE ZONES and click the ENTER



button. The initial zone setting is displayed in a white border. By moving the direction key, the entire zone setting will move to all directions. By clicking the ENTER button, the white border will be changed to a green one. In this case, move the direction key to zoom in the zone. By clicking the ENTER button, the green border will be changed to a red one. In this case, move the direction key to zoom out of the zone. Hold the ENTER button for several seconds to complete the zone setting and to leave the page.

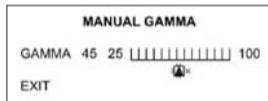
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### 2.3.4 FLICKERLESS *CAMERA SETUP » VIDEO ADJUSTMENT » FLICKERLESS*

- OFF: Disables the feature that allows the automatic disabling of flickering.
- ON: Enables the feature that allows the automatic disabling of flickering.

### 2.3.5 GAMMA

- AUTO: Corrects the value of automatic gamma (NTSC:0.45/PAL:0.36).
- MANUAL: Sets a value from 25 (0.25) to 100 (1.0).



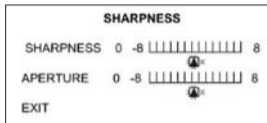
*CAMERA SETUP » VIDEO ADJUSTMENT » GAMMA » MANUAL*

### 2.3.6 RESOLUTION : Selects NORMAL or HIGH.

*CAMERA SETUP » VIDEO ADJUSTMENT » RESOLUTION*

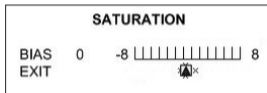
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2.3.7 SHARPNESS : Sets the values of SHARPNESS and APERTURE.



*CAMERA SETUP » VIDEO ADJUSTMENT » SHARPNESS*

2.3.8 SATURATION : Increases or decreases the saturation of the video color to set a color.

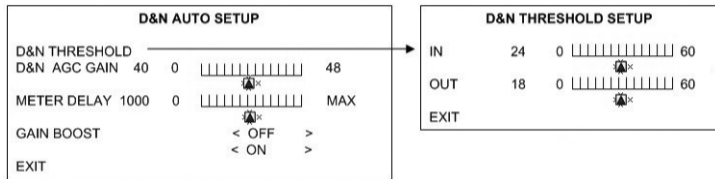


*CAMERA SETUP » VIDEO ADJUSTMENT » SATURATION*



## 2.4 D&N SETUP

- COLOR: Always displays the video in a color.
- BW+Burst: Always displays the video in black and white at burst signals.
- BW: Always displays the video in black and white.
- AUTO: Typically displays the video in color. Changes the color to black and white at a low light level.



*CAMERA SETUP » D&N SETUP » AUTO » D&N THRESHOLD*

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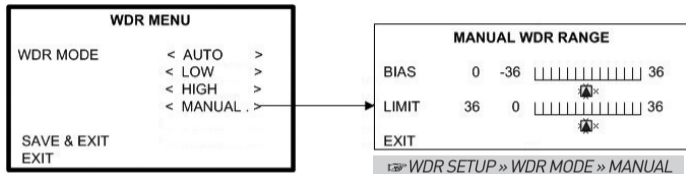
- D&N THRESHOLD: Sets the gain value when the video is switched to black and white (IN) and to color (OUT).

AGC	IN
LOW	Less than 18 dB
NORMAL	Less than 26 dB
HIGH	Less than 34 dB
MANUAL	User Setting

\* The difference between the value of IN and of OUT must be always 6 dB. To change the value of IN, check the value of AGC GAIN in the current camera and change the value to a number lower than the current AGC GAIN value.

- D&N AGC GAIN: When switching color video to black and white, set the value of AGC GAIN. (When D&N AUTO operates, AGC GAIN will operate as D&N AGC GAIN.)
- METER DELAY: Sets the interval of switching D&N AUTO to another mode (Unit: ms).
- GAIN BOOST: By setting GAIN BOOST to ON, the D&N AGC GAIN value will increase by 6 dB when the screen switches to black and white. Accordingly, the screen will be brighter.

### 3. WDR SETUP



This menu allows you to see both the subject and background simultaneously even if an extreme counter light is applied to the subject.

By selecting MANUAL, you can set the values of BIAS and LIMIT.


- BIAS: If the contrast of the screen is too high, increase the value. If the contrast is too low, decrease the value to set the optimal condition. (Since the overall brightness of the screen changes, an unusual phenomenon may occur on the screen.)
- LIMIT: Sets the maximum value of WDR operation. (Since the performance of WDR may vary depending on the area of the bright screen part, optimize the installation angle.)

## 4. DISPLAY SETUP

DISPLAY SETUP MENU		
TITLE DISPLAY	< ON .	>
	< OFF	>
DIGITAL PTZ	< OFF	>
	< ON .	>
MIRROR	< OFF	>
	< ON	>
FREEZE	< OFF	>
	< ON	>
	< MANUAL .	>
LOW LIGHT	< DSS .	>
	< NON-DSS	>
MOTION DETECTION	< OFF	>
	< ON .	>
LANGUAGE		
SAVE & EXIT		
EXIT		

- TITLE DISPLAY: Displays the camera title on the screen.
- DIGITAL PTZ: 4X Digital Zoom.
- MIRROR: Inverts the screen side-to-side.
- FREEZE: Stops the screen.
- LOW LIGHT: Sets the operation of the digital slow shutter at a low light level.
- MOTION DETECTION: Detects motion inside of the zone.
- LANGUAGE: Supports multiple languages (Will be enabled).

### 4.1 TITLE DISPLAY

 DISPLAY SETUP » TITLE DISPLAY » ON

You can enter up to 13 letters for camera titles. (EX. "TITLE :1234567890123")

\* How to Enter a Title:

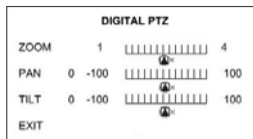
- Moving Positions: Click the ENTER button.
- Converting Fonts: Click the Left/Right button.
- Once the title is entered, click the Up/Down button to move to POSITION.
- Select the location where the title will be displayed and exit.

TITLE DISPLAY SETUP		
TITLE :		
POSITION	< UP-LEFT	>
	< UP-CENTER	>
	< UP-RIGHT	>
	< DOWN-LEFT	>
	< DOWN-RIGHT	>
EXIT		

## 4.2 DIGITAL PTZ

DIGITAL PTZ allows you to zoom by 4 by enabling digital zoom. Move all directions while operating zoom to search the screen.

Enable DIGITAL PTZ and click the ENTER button to move to the DIGITAL PTZ page. In this page, you can set the values of ZOOM, PAN, and TILT.



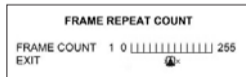
*DISPLAY SETUP » DIGITAL PTZ » ON*

## 4.3 MIRROR *DISPLAY SETUP » MIRROR*

MIRROR allows you to invert the screen side-to-side.

## 4.4 FREEZE

If you set FREEZE to ON, you can enable or disable the screen you want. By clicking the ENTER button while MANUAL is set, you will move to the FRAME REPEAT COUNT page to set the screen frame (Progressive).

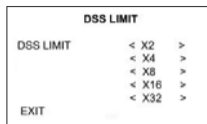


*DISPLAY SETUP » FREEZE » ON*

#### 4.5 LOW LIGHT DISPLAY SETUP » LOW LIGHT » DSS

By enabling the DIGITAL SLOW SHUTTER (DSS) as well as AGC GAIN at low light levels, the video will be brighter.

By selecting LOW LIGHT and DSS in sequence and clicking the ENTER button, you will move to the DSS LIMIT page to set the value of DSS LIMIT. The higher the value, the brighter the screen gets at a low light level. In this case, the screen will be more unstable.

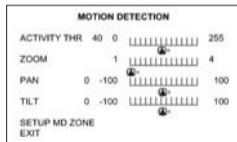


#### 4.6 MOTION DETECTION DISPLAY SETUP » MOTION DETECTION » ON

MOTION DETECTION allows you either to detect motion by the subject on the screen in order to display it on the screen or to operate zoom in order to monitor more efficiently.

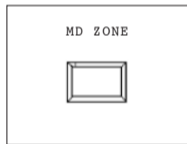
By selecting MOTION DETECTION and ON in sequence and clicking the ENTER button, you will move to the MOTION DETECTION page to set the value of ACTIVITY THR, which refers to sensitivity. (The higher the number, the lower the sensitivity)

The MOTION DETECTION zone can be changed to the location you want.



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- **ACTIVITY THR (THRESHOLD):** Sets sensitivity to sense motion by the subject. If the subject moves, this product will operate.
  - **ZOOM:** Performs zoom operation where the zoom cursor is located if the subject moves. If the zoom cursor exists at 1, zoom will not operate even if the subject moves.
  - **PAN:** Enables PAN according to the settings of ZOOM.
  - **TILT:** Enables TILT according to the settings of ZOOM.
  - **SETUP MD ZONE:** Sets the MOTION DETECTION area to sense motion by the subject in the area.

\* How to Set SETUP MD ZONE:



The initial zone setting is displayed in a white border. By moving the direction key, the entire zone setting will move to all directions.

By clicking the ENTER button, the white border will be changed to a green one. In this case, move the direction key to zoom into the zone.

By clicking the ENTER button, the green border will be changed to a red one. In this case, move the direction key to zoom out of the zone.

Hold the ENTER button for several seconds to complete the zone setting and to leave the page.

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## SPECIFICATION

	BC-540WDR
Day/Night	Day/Night, DSS (Digital Slow Shutter)
Image Sensor	1/3" DPS Technologies (D2500R)
Signal Processor	DSP (Digital Signal Processor)
TV System	NTSC/PAL Selectable
Total Pixels	(H)742 x (V)554
Effective Pixels	(H)720 x (V)540
Horizontal Resolution	540TVL
Vertical Resolution	460TVL
Scanning System	Progressive Image Capture, 540TVL equivalent
Sync. Systems	Internal(12VDC)/L.L(External/24VAC), Auto Switching
Min. Illumination	0.6 Lux at F 1.2
Signal to Noise Ratio	More Than 50dB(AGC Off)
Lens	C/CS Mountable(Not Included)
Video Output	VBS 1.0Vpp Composite
Extrenal Connection	DC IRIS(4Pin), Video(BNC), Power Input



OSD CONTROL	
CAMERA SET UP	Video Set Up : TV System, SYNC, SYNC Auto Sense Lens Selection : Lens Type, DC Gain, Video Gain, AI Thresh Video Adjustment : White Balance, AGC, BLC, FLK, Gamma, Resolution, Sharpness, Saturation Day&Night Setup : Color, BW + Burst, BW, Auto
WDR SET UP	Auto, Low, High, Manual
DISPLAY SETUP	Title, Digital PTZ, Mirror, Freeze, Low Light, Motion Detection
Electrical	
Power Source	12VDC/24VAC Dual Power(Non-Polarity)
Power Consumption	12VDC 250mA $\pm$ 10% / 24VAC 5W $\pm$ 10%
Environmental	
Operating Temperature	14°F ~ 122°F (-10°C ~ 50°C)
Operating Humidity	Up to 90% RH
Mechanical	
Lens Mount	C/CS Mount
Material	Aluminum
Color	Ivory
Camera Mount	1/4" - 20 UNC thread on top and bottom
Dimension(mm)	65(W) x 54(H) x 133(D)
Weight	300g

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## SUPPLIED ACCESSORIES

- 4-Pin iris plug
  - L-Wrench
  - Operation manual
  - Triped Mounting Base
  - Triped fixing screw x 4
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- CS-mount adapter are attached when supplied.

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# MEMO

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# MEMO



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■ Design and specifications are subject to change without notice.

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